

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 18

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte FRANCES H. BENTON

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Appeal No. 1998-2465  
Application No. 08/599,192

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ON BRIEF

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Before FLEMING, DIXON, and GROSS, Administrative Patent Judges.  
GROSS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 1, 3, 4, 7, 13 through 19, 21 through 23, and 28, which are all of the claims pending in this application.

Appellant's invention relates to a fluid overflow detection probe. The probe includes an infrared light source, a prism made of a fluoropolymer material, and a photodetector. When the fluid being detected contacts the prism, the prism surfaces internally reflect an optical signal from the light

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source toward a photodetector, but when the fluid does contact the prism, no internal reflection takes place, and the optical signal does not reach the photodetector. Claim 16 is illustrative of the claimed invention, and it reads as follows:

16. A fluid overflow detection probe comprising:

a light source which emits an optical signal having a center wavelength in the infrared range;

a photodetector which detects the optical signal; and

a prism into which the optical signal is coupled by the light source, the prism material comprising a fluoropolymer and providing internal reflection of the optical signal from the light source toward the photodetector when a surface of the prism at which said reflection occurs is not contacted by a fluid being detected, the prism not providing said internal reflection when said prism surface is contacted by said fluid.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Beauvais et al. (Beauvais)	4,840,137	Jun. 20,
1989		
Tregay	4,998,022	Mar. 05,
1991		

Claims 1, 3, 4, 7, 13 through 19, 21 through 23, and 28 stand rejected under 35 U.S.C. § 103 as being unpatentable over Tregay in view of Beauvais.

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Reference is made to the Final Rejection (Paper No. 8, mailed September 25, 1997) and the Examiner's Answer (Paper No. 12, mailed April 1, 1998) for the examiner's complete reasoning in support of the rejection, and to appellant's Brief (Paper No. 11, filed February 27, 1998) and Reply Brief (Paper No. 13, filed June 5, 1998) for appellant's arguments thereagainst.

#### OPINION

We have carefully considered the claims, the applied prior art references, and the respective positions articulated by appellant and the examiner. As a consequence of our review, we will reverse the obviousness rejection of claims 1, 3, 4, 7, 13 through 19, 21 through 23, and 28.

As a preliminary matter we note that all of the claims recite a prism comprising a fluoropolymer material and a light source with a center wavelength in the infrared range. As all arguments pertain to the obviousness of combining an infrared light source with a fluoropolymer prism, the discussion below applies to all of the claims.

The only issue in this case is whether it would have been obvious to use the infrared LED of Beauvais as the light

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source for Tregay's probe. Tregay does not disclose what type of light is used for his probe. Beauvais uses a transparent prism of polyethersulfone with an infrared light source. However, Beauvais fails to disclose any reason for using an infrared type LED as the light source. Beauvais merely states (column 6, lines 56-57) that in his fluid detector, "[t]ypically the light source 56 can take the form of a light-emitting diode, preferably an infrared type."

The examiner maintains (Final Rejection, page 2) that "[i]t would have been obvious to use the infrared LED in Beauvais et al as the light source in Tregay to reduce noise due to the interference of visible light." Appellant argues (Brief, page 8) that

there is no evidence provided that one skilled in the art would have had such a notion, or even that "noise due to interference of visible light" is a problem in the field. In fact, since the probes in question are generally used within fluid containers, such as petroleum tanks, ambient visible light is not a significant problem.

The examiner, in turn, responds (Answer, page 6) that

[a]mbient or visible light noise to an optical device is, in fact, a notoriously well known problem in the art unless an optical device is perfectly sealed. Even a small crack in the housing in which an optical device is enclosed would introduce

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ambient or visible light noise to an optical device. Therefore, one skilled in the art would almost always consider a way to eliminate the effects of ambient or visible light noise.

The Federal Circuit states that "[t]he mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification." In re Fritch, 972 F.2d 1260, 1266 n.14, 23 USPQ2d 1780, 1783-4 n.14 (Fed. Cir. 1992), citing In re Gordon, 733 F.2d 900, 902, 221, USPQ 1125, 1127 (Fed. Cir. 1984). As indicated above, the examiner has provided no art suggesting the desirability of the modification.

It is further established that "[s]uch a suggestion may come from the nature of the problem to be solved, leading inventors to look to references relating to possible solutions to that problem." Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc., 75 F.3d 1568, 1573, 37 USPQ2d 1626, 1630 (Fed. Cir. 1996), citing In re Rinehart, 531 F.2d 1048, 1054, 189 USPQ 143, 149 (CCPA 1976) (considering the problem to be solved in a determination of obviousness). Since Tregay discloses the same problem solved by appellant, i.e., that

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fluoropolymers are poor transmitters for visible light, references evidencing that fluoropolymers are known to transmit infrared light better than visible light would have been appropriate. However, no such evidence was supplied by the examiner.

In addition, our reviewing court requires the PTO to make specific findings on a suggestion to combine prior art references. In re Dembiczak, 175 F.3d 994, 1000-01, 50 USPQ2d 1614, 1617-19 (Fed. Cir. 1999). In the case before us, nowhere does the examiner particularly identify any suggestion, teaching, or motivation to combine the infrared light source with Tregay's probe, nor does the examiner make any specific factual findings that might serve to support a proper obviousness analysis. The examiner merely asserts that all optical devices have problems with ambient light noise, but has failed to support his assertion with references indicating that ambient visible light has any effect in the specific environment of an enclosed petroleum tank, nor that infrared light solves such a problem.

Thus, the examiner has failed to set forth a prima facie case of obviousness. Accordingly, we cannot sustain the

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rejection of claims 1, 3, 4, 7, 13 through 19, 21 through 23,  
and 28.

CONCLUSION

The decision of the examiner rejecting claims 1, 3, 4, 7,  
13 through 19, 21 through 23, and 28 under 35 U.S.C. § 103 is  
reversed.

REVERSED

MICHAEL R. FLEMING	)	
Administrative Patent Judge	)	
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	)	
	)	BOARD OF PATENT
JOSEPH L. DIXON	)	APPEALS
Administrative Patent Judge	)	AND
	)	INTERFERENCES
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	)	
ANITA PELLMAN GROSS	)	
Administrative Patent Judge	)	

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